The Commonwealth of Massachusetts

DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

BOSTON GAS COMPANY
D.T.E. 03-40-C

FIRST SET OF INFORMATION REQUESTS OF THE DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY TO BOSTON GAS COMPANY

DTE 1-1 With respect to the regression model presented in Schedule 1 to Schedule 6 of the Company's filing, please indicate the level of statistical significance of the estimates selected by the Company to determine whether or not an independent variable has explanatory power.

DTE 1-2 Regarding the total gas sales ("TSS") and total sendout ("TSD") time series data, please explain the rationale for the large increase in the Company's TSS and TSD between 1991 and 2002.

DTE 1-3 Refer to Company filing at 5. The Company used linear and logarithmic functions to model the different costs. Please discuss whether or not the Company considered and tried to fit different functional forms, other than linear and logarithmic, to model costs. If other forms where considered, please describe them and indicate why they were not used.

DTE 1-4 Regarding "Distribution Capacity Cost" (see Company filing at Schedule 1, pp. 10-25), please discuss where the Company's goal was to estimate the long-run marginal distribution capacity cost or the short-run marginal distribution capacity cost.

DTE 1-5 Regarding the "Distribution Capacity Cost" (see Company filing at Schedule 1, pp. 10-25), please:

1. discuss the differences between the following variables: "estimated investment in mains" and "total distribution plant;"

2. discuss what accounts and subaccounts (according to the Uniform System of Accounts for Gas Companies) were used to derive the variables "total distribution plant" and the "estimated investment in mains;"

3. explain how the "total distribution plant" was calculated;

4. explain how the "estimated investment in mains" variable was calculated;

5. discuss whether or not the Company considered to include "design year demand" as an explanatory variable instead of total sendout and / or design day demand.

DTE 1-6 Please compute and present the correlation matrix among all independent variables for the regression equations depicted in the following Tables: Table 1-1, Table 1-2, Table 1-3, Table 1-4, Table 1-5, Table 1-6.

DTE 1-7 Regarding the regression models depicted in Table 1-20; Table 1-21; Table 1-22; and Table 1-23:

1. did the Company use a constant term in those regression equations? If not, please provide an explanation and discuss the statistical implications of not using constant terms in regression equations;

2. please discuss the economic implications of not using a constant term when modeling a cost function; How does a regression equation with no constant term describe better the Company's distribution capacity cost?

3. compute and present for every regression equation estimated with no constant term an alternative measure of R^2 in which the total variation and the "explained" variations of the dependable variable are measured as deviations from zero rather than their means;

4. compute and present for every regression equation estimated with no constant term an alternative test (other than DW) for testing serial autocorrelation;

5. estimate the regression equations including a constant term. Please make sure that serial autocorrelation problem is also corrected;

6. compare the results obtained in part 5 with the results originally filed by the Company and comment on which final models the Company would select;

7. explain the rationale for including the variable "FTA" in those models.

DTE 1-8 The Company states that it selected the Model 2 least square linear equation because the structure of the equation has a sound theoretical basis and because it has acceptable statistical results (see Company filing at 24-25; Schedule 1 at Table 1-22). Please:

1. discuss why the Company selected Model 2 in its linear form instead of selecting Model 2 in its logarithmic form;

2. discuss why the Company selected Model 2 when the level of statistical significance of the estimate of the relevant variable (variable "DMD") is greater than 10 percent.

DTE 1-9 Regarding the "Marginal Customer Related Service Investment" (see Company filing at Schedule 2, pp. 26-43), please:

1. define the variable" service investment cost." Please discuss what accounts and subaccounts (according to the Uniform System of Accounts for Gas Companies) were used to derive the variables;

2. explain how the "Service Investment" variable was calculated;

3. please define the variables: "GASR," "GASC," and "GASO." Are transportation volumes included in those variables?

4. define the variable "MTEN" and specify whether the meters corresponding to firm transportation customers are included; and

5. define the variable "CUSO." What sort of customers are supposed to be represented by this variable? Please explain the difference between "CUSO" and "CUST" (see Company filing at 27).

DTE 1-10 Refer to Company filing at 40. Please explain the following sentence: "It is important to assess the impact of residential and commercial/industrial customers conjointly."

DTE 1-11 Please explain why the Company corrected for autocorrelation the model presented in Table 2-15. Did serial autocorrelation exit? Please present evidence of the existence of serial autocorrelation. If applicable, please explain the consequences of correcting for autocorrelation when, in actuality, the problem does not exit (see Company filing at Schedule 2, pp. 35-37).

DTE 1-12 Refer to Company filing at 26. The Company states that it estimates the marginal cost of meter and service investment per customer on the knowledge that investment in meters and services is driven by the number of customers. In this regard, please explain why the Company modeled the service investment cost using the following variables:

1. "GASR" and "GASC" (see Company filing at 26-27, equation 2-1 and 2-2);

2. "GASC" and "GASO" (see Company filing at 27, equation 2-3 and equation 2-4);

3. "TSS" and "GAST" (see Company filing at 28, equation 2-5 and equation 2-6);

4. "SVEN" and "MTEN" (see Company filing at 26-28, equation 2-1, equation 2-2, equation 2-3, equation 2-4, equation 2-5, and equation 2-6).

DTE 1-13 Refer to Company filing at Schedule 2. The Company modeled service investment cost using the number of meters as one of the explanatory variables. In this regard, please explain the rationale for including the "number of meters" variable as explanatory variable and discuss how the Company interprets the estimates of that variable. Is the number of meters variable a linear combination of both "the number of residential customers and the number of C&I customers? If yes, why did the Company include two variables measuring the same issue?

DTE 1-14 Please compute and present the correlation matrix among all independent variables for the regression equation depicted in the following Tables: Table 2-1, Table 2-2, Table 2-3, Table 2-4, Table 2-5, and Table 2-6.

DTE 1-15 Refer to Company filing at 41-42. Please:

1. explain the differences between the regression models presented in Table 2-25 and Table 2-27;

2. explain the differences between the regression models presented in Table 2-26 and Table 2-28.

DTE 1-16 Refer to Company filing at 42. Given that the p-value of the estimate of "CUSC" variable is 0.3288, what is the rationale for keeping and selecting the estimate of "CUSC" variable as the marginal cost estimate of service investment cost per C&I customer?

DTE 1-17 Refer to Company filing at 42-43, Schedule 2, p. 39. Please explain the rationale for selecting marginal cost estimates of $991.83 for the residential class and $2,185.28 for the C&I class instead of $767.33 per customer or $1,812.65 per customer.

DTE 1-18 Regarding the "marginal cost of capacity related production expenses" (see Company filing at 44-53, Schedule 3), please:

1. discuss the nature of cost captured by the variable "capacity related production expenses." Please discuss what accounts and subaccounts (according to the Uniform System of Accounts for Gas Companies) were used to derive the variable; and

2. explain how the "capacity related production expenses" variable was calculated.

DTE 1-19 Refer to Company filing at Schedule 3. The Company modeled "capacity related production expenses" using either "design day demand" and "total sendout" variables or "peak day sendout" and "total sendout" variables. In this regard, please explain the rationale for including the "total sendout" variable as explanatory variable. What does the "total sendout" variable add to the model?

DTE 1-20 Please compute and present the correlation matrix among all independent variables for the regression equation depicted in the following Tables: Table 3-1, Table 3-2, Table 3-3, and Table 3-4.

DTE 1-21 Refer to Company filing at 52. The Company states that it selected Model 1-least square linear equation with the marginal cost of $0.011 per design day demand MMBtu. Please explain the rationale for selecting that model instead of the model depicted in Tables 3-14; Table 3-15; and Table 3-16.

DTE 1-22 Regarding the "Capacity Related Transmission and Distribution Expenses" (see Company filing at Schedule 4, pp. 54-63), please:

1. discuss the nature of the costs captured by the variable capacity related transmission expenses and please discuss what accounts and subaccounts (according to the Uniform System of Accounts for Gas Companies) were used to derive the variable; and

2. explain how the "capacity related transmission and distribution expenses" variable was calculated.

DTE 1-23 The Company states that the auto-regression procedure found no auto-correlation in the logarithmic form of Model 1 (Table 4-14) (see Company filing at 62). However, the DW statistic of 1.076 indicates the presence of auto-correlation. Please discuss why the Company did not correct for serial autocorrelation.

DTE 1-24 Refer to Company filing at 54. The Company states that expenses incurred to operate and maintain the distribution system are driven by the maximum daily demand placed on the system. However, the Company modeled capacity related transmission and distribution expenses using either the "design day demand" and "total sendout" variables or "peak day sendout" and "total sendout" variables. In this regard, please explain the rationale for including the "total sendout" variable as explanatory variable.

DTE 1-25 Refer to Company filing at 63. The Company states that it selected the Model 1-least square linear equation above with the marginal cost of $64.79 per design day demand MMBtu. Please explain the rationale for selecting that model instead of the models depicted in Table 4-14, Table 4-15, and Table 4-16.

DTE 1-26 Regarding "Customer Related Operating Expenses," Customer Account Expenses," and "Uncollectible Account Expenses" (see Company filing at Schedule 5, pp. 64-77), please:

1. discuss what accounts and subaccounts (according to the Uniform System of Accounts for Gas Companies) were used to derive the variables "customer related meter and service expense," "customer accounting expenses," and "uncollectible account expenses;"

2. discuss the differences between the following variables: "customer related meter and service expense," "customer accounting expenses," and "uncollectible account expenses;"

3. explain how the "customer related meter and service expense" variable was calculated;

4. explain how the "customer accounting expenses" variable was calculated; and

5. explain how the "uncollectible account expenses" variable was calculated.

DTE 1-27 Regarding the models in Table 5-19; Table 5-21; and Table 5-23, please:

1. discuss whether or not the Company included a constant term in the equations. If no, please provide an explanation;

2. compute and present for every regression equation with no constant term and alternative measure of R^2 in which the total variation and the "explained" variations of the dependable variable are measured as deviations from zero rather than their means;

3. if the constant term was not included, please compute an alternative test for testing serial autocorrelation.

DTE 1-28 The Company states that it selected the linear equations for the marginal related operating expenses, the marginal customer accounting expenses and the marginal uncollectible accounts expenses (see Company filing at 76-77). In this regard, please discuss the advantages and disadvantages of estimating the three types of expenses at the same time using only one equation.

DTE 1-29 Regarding "Customer Related Operating Expenses"(see Company filing at Schedule 6, pp. 78-97), please:

1. discuss what accounts and subaccounts (according to the Uniform System of Accounts for Gas Companies) were used to derive the variables "labor related expenses," "allocable non-plant O&M expenses," "total plant related expenses," "non-fuel materials and supplies expenses," and "intangible plant;"

2. discuss the differences between "TSS" and "TSD" variables;

3. compute an alternative test for testing serial autocorrelation for each of the model with no constant term (see Table 6-31, Table 6-32, Table 6-33, Table 6-34, Table 6-35, Table 6-36, Table 6-37, Table 6-38, Table 6-39, and Table 6-40);

4. compute and present for every regression equation with no constant term and an alternative measure of R^2 in which the total variation and the "explained" variations of the dependable variable are measured as deviations from zero rather than their means; and

5. explain why the Company selected the linear form of Model 4 instead of the logarithmic form.

DTE 1-30 Please provide on disk in Excel format all data and supported formula shown in the Schedule 7, Schedule 8, Schedule 9, Schedule 10, and Schedule 11 of the Company's filing.